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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/BA 3							R-1 ITEM NOMENCLATURE Counterterror Technical Support PE 0603122D8Z			
COST(In Millions)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	40.826	37.667	52.223	54.791	56.510	52.758	54.021	55.306	Continuing	Continuing
Counterterror Technical Support (CTTS)/P484	35.675	32.349	43.054	45.330	46.768	42.713	43.626	44.595	Continuing	Continuing
Explosive Ordinance Disposal/Low Intensity Conflict/P206	3.717	3.983	7.831	8.095	8.350	8.626	8.847	9.131	Continuing	Continuing
Special Operations/Low Intensity Conflict (SO/LIC)/P205	1.434	1.335	1.338	1.366	1.392	1.419	1.548	1.580	Continuing	Continuing

(U) **A. Mission Description and Budget Item Justification**

(U) **BRIEF DESCRIPTION OF ELEMENT**

(U) P484, Counterterror Technical Support (CTTS). This program develops technology and prototype equipment that address needs and requirements that have direct operational application in the national effort to combat terrorism. It integrates defense advanced development efforts with government-wide and international efforts to combat terrorism. Projects support antiterrorism and counterterrorism activities to: conduct tactical operations; protect military forces, civilian personnel, installations, infrastructure elements and the general populace from terrorist attack; detect, neutralize, and mitigate the effects of conventional and unconventional (chemical, biological, nuclear, and radiological) devices; conduct surveillance and tracking of terrorist; conduct threat and event assessments; and process and disseminate information. The Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict directs the CTTS Program which addresses combating terrorism requirements identified by the interagency Technical Support Working Group (TSWG).

(U) The TSWG is a multi-agency R&D working group under the aegis of the National Security Council's Interagency Working Group on Counterterrorism. As such, the CTTS program supports, and is integrated into, the national interagency response to terrorism. Also, it conducts a cooperative international R&D program, and is executing projects with three countries.

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(U) The CTTS program develops technologies and state-of-the-art prototype equipment that have direct operational application in the national effort to combat terrorism. Projects address the highest priority needs as dictated by current threat assessments. Documented activities and capabilities show that terrorists continue to be technologically and tactically sophisticated, which poses new challenges to our capability to respond. The CTTS program supports measures against chemical and biological terrorism and is fully coordinated with the Chemical/Biological Defense Program and the Counterproliferation Support Program. Current priorities are the detection and neutralization of terrorist-built explosive devices, countermeasures for chemical and biological terrorism, and the detection and surveillance of terrorists.

(U) Projects are structured to address numerous technical focus areas. Capabilities to be pursued include: equipment used to prevent and respond effectively to a chemical/biological agent release in an urban area; building a national capability to detect and disable large-vehicle bombs; methods and systems used to detect improvised terrorist devices from stand-off distances; a national infrastructure assurance and protection; systems for improved audio and video surveillance of terrorists; effective detection of ammonium nitrate-based explosives; more effective post-blast forensic analysis; and equipment and systems assisting DoD units and other response agencies in dealing with consequence management following a terrorist attack. These areas address deficiencies cited in response to questions about the adequacy of counterterrorism R&D posed in Presidential Decision Directive 39 (PDD-39).

(U) All national and international projects are distributed among eight counterterrorism mission categories: Tactical Operations Support; Explosives Detection and Disposal; Weapons of Mass Destruction Countermeasures; Personnel Protection; Surveillance, Collection, and Operations Support; Physical Security; Infrastructure Protection; and Investigative Support and Forensics. This program is a non-system advanced technology development project used to demonstrate the utility or cost reduction potential of technology when applied to different types of defense equipment or techniques. It includes technology development and proof-of-principle demonstrations in field applications for new and improved systems. Coordination and planning efforts with the participating agencies facilitate technology transition from development to operational use. The demonstrations strive to evaluate integrated technologies in a realistic operating environment to assess the performance in actual mission scenarios and the cost reduction potential of advanced technology.

(U) P206, Explosive Ordnance Disposal/Low-Intensity Conflict (EOD/LIC). The EOD/LIC project is a rapid prototyping effort to provide technology and equipment to military operators who are confronted with explosive threats. Tasks focus on detection, countermeasures, and neutralization of explosive threats. Requirements submitted by the Joint Service EOD community and other LIC-oriented military users are prioritized by the OSD EOD/LIC Coordination Group.

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(U) P205, Special Operations/Low-Intensity Conflict (SO/LIC) Analytical Support. The S O/LIC Analytical Support project provides specialized research and analytical support for the Assistant Secretary of Defense for Special Operations and Low- Intensity Conflict, (ASD (SO/LIC)). Projects address a broad spectrum of technical, acquisition, and policy issues relating to special operations, counter- and anti-terrorism, peacekeeping, psychological operations, counterinsurgency, unconventional warfare, and contingency operations. The project supports and is integrated into overall DoD efforts to develop options for dealing effectively with a wide range of military responsibilities in military operations other than war. This project provides a vehicle to initiate analysis required to support acquisition documentation and conceptual policy issues regarding roles and missions of SOF in the changing world environment. Analysis may also be used to improve OASD(SO/LIC) 's congressionally mandated oversight function of special operations and low-intensity conflict.

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<i>COST(In Millions)</i>	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	40.826	37.667	52.223	54.791	56.510	52.758	54.021	55.306	Continuing	Continuing
Counterterror Technical Support (CTTS)/P484	35.675	32.349	43.054	45.330	46.768	42.713	43.626	44.595	Continuing	Continuing

(U) **Project Number and Title: P484 Counterterror Technical Support (CTTS)**

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS**

(U) **FY1998 Accomplishments:**

(U) **TACTICAL OPERATIONS SUPPORT.** Completed development of specialized access tools that provides for installing anchors for supporting assault forces. Continued development of a high-speed, personnel delivery boat. Continued development of a rifle-fired 40mm grenade with a controlled fragmentation pattern for use in close quarters battle scenarios. Continued development of night vision goggles that substantially reduces the effects of halo and blooming when bright lights are encountered, greatly improving the effectiveness of the devices. Started development of the design for a miniature laser range finder for use by snipers and other tactical forces. (\$ 1.635 Million)

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(U) **EXPLOSIVES DETECTION & DEFEAT.** Completed development of the High Energy Access and Disablement system (HEAD) for the disruption of large vehicle bombs; procedures and hardware delivered to US Air Force EOD teams. Completed development of the 90-mm water cannon disrupter for mid-sized improvised explosives devices (IEDs); procedures written and 6 systems deployed over seas to EOD teams. Completed test and evaluation of a COTS water disrupter, the "Boot Banger", for disruption of improvised explosive devices contained within the truck of a passenger car; procedures written for EOD. Completed development of a base-line, prototype of the All-purpose Remotely controlled Teleoperated System (ARTS) for use against large vehicle bombs. Completed development of the Universal Training Device for training against IEDs; 20 systems delivered for DOD testing. Continued development of a system for the detection of terrorist bombs from standoff distances under a variety of conditions. Continued to develop the full spectrum of response requirements for large vehicle bombs, including detection, analysis, access, and disablement. Continued to develop an interactive, computer-based improvised explosive device neutralization training system. Continued to develop a safer initiating system for various explosive disruption robots. Continued development of a single-sided antenna for use with nuclear quadrupole resonance explosive detection methods. Continued researching factors that affect the capabilities of improvised explosive device detection through biological schemes. Continued development of a field-portable x-ray system for imaging the contents of suspect baggage/containers when access to only one side is possible. Started development of a flat-panel imager for a digital x-ray system. Started development of a Canine based, remote collection, screening system for large vehicle bombs. Started the development of a single-sided neutron interrogation unit for the detection of vehicle bombs. Started modeling of non-ideal, terrorist explosives. Started development of a database for identification of large vehicle threats, disruption tools and procedures. Started development of the ARTS platform to include on-board diagnostics and access tools for EOD. (\$ 7.06 Million)

(U) Continued development of the Pulsed Fast Neutron Analysis (PFNA) Container Inspection System (CIS) to non-intrusively determine materials present in large shipping containers. (\$ 2.707 Million)

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(U) **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES.** Completed the development of a low-cost, throw-away protective mask to provide sufficient levels of protection from a chemical/biological threat while egressing a contaminated area. Completed development of a handheld reader for immunochromatographic assays for the detection of biological agents. Completed the development of a ruggedized, downsized capability for operators to determine the contents of closed containers. Completed development of chemical/biological masks for first responders. Completed the development of an improved, in-field capability to identify nuclear materials. Continued development of a standoff system for detection and characterization of chemical and biological agents using a non-nuclear source. Continued development of a non-hazardous, non-corrosive, environmentally-safe decontamination systems for chemical and biological agents. Started the modification of a ion mobility spectroscopy chemical agent detector to perform separation of chemical agents in contaminated environments with a reduction in false alarms. Started the development of a real-time, highly selective and sensitive, portable chemical and biological warfare agent detection systems. Started the development of a rapid detection system for pathogenic chemical and biological agents in food. Started development of a personal chemical and biological agent dosimeter. Started development of a inexpensive disposable chemical and biological protective system. (\$ 6.398 Million)

(U) Started development of an Anti-Biological Device (ABD) to non-intrusively destroy biological agents in situ. (\$ 3.539 Million)

(U) **PERSONNEL PROTECTION.** Completed the design enhancements to allow fully armoring of a unibody vehicle. Continued development of a design for flexible body armor that resists penetration and slashes from knives and other sharp edged instruments. Started development of lightweight body armor using advanced materials to make the armor lighter and more flexible. Started modeling explosive effects on fully armored vehicles, including effects on occupants. Started a study to evaluate technologies to support the detection and interception/deflection of sniper bullets directed at speakers. Started evaluation of alternative, lightweight, transparent armor for use in vehicles. (\$ 2.845 Million)

(U) **SURVEILLANCE, COLLECTIONS, & OPERATIONS SUPPORT.** Started development of advanced tagging systems. Started development of hostage barricade surveillance systems. (\$ 1.500 Million)

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(U) **PHYSICAL SECURITY.** Completed and distributed guides to DoD field activities for Security Glazing Applications and Protection Against Terrorist Vehicle Bombs. Developed and distributed Terrorist Bomb Threat Stand-Off reference to security forces and EOD activities. Completed development of prototype non-intrusive, multi-sensor, inspection system for the detection of bulk explosives in large vehicles. Conducted demonstration of inspection technologies in SWA, success of demonstration has resulted in request to conduct additional OCONUS follow-on technology demonstrations. Completed Personal Injury Study of the Oklahoma City Bombing detailing location of injuries and fatalities from the bombing. Continued the development of an interagency Structural Blast Mitigation Program. Started field tests of specialized structures that address pre and post construction technologies to mitigate blast effects. Started follow-on study at Air Force request to address the Khobar Tower bombing. Started data computation effort to verify various interagency computer blast models. Started development of a modular, open architecture computer based system able to address vulnerability assessments and consequence or risk management to assist security personnel, facility engineers, installation managers and Commanders in making effective and cost-sensitive force protection and facility security decisions. (\$ 8.126 Million)

(U) **INFRASTRUCTURE PROTECTION.** Continued development of an automated infrastructure analysis tool for the electric power grid. Started development of a means of modeling the effects of economic and information warfare terrorism. Started development of an radio frequency weapon characterization and effects database. Started development of a common encryption standard for use by the “commodity transport” infrastructure systems (i.e., natural gas, petroleum, electricity, etc.) on their Supervisory Control and Data Aquisition (SCADA) systems and Remote Terminal Units (RTU). (\$ 0.695 Million)

(U) **INVESTIGATIVE SUPPORT & FORENSICS.** Continued development of an enhanced version of the CarBomb CAD analysis tool, which is a system that aides post-blast analysis of vehicle bombs. Started development of an enhanced handwriting analysis system. Started development of a personal attribute determination by fingerprints capability. Started the development of a system to detect and recover fingerprints on water soaked surfaces. Started development of a document copier tagging system. Started development of chemicals to tag devices and documents with micro-tracer particles. (\$ 1.170 Million)

(U) **FY1999 Plans:**

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(U) **TACTICAL OPERATIONS SUPPORT.** Complete development and field evaluation of night vision goggles that mitigate the effects of halo effects and blooming when bright lights are encountered, and which is rugged enough to withstand the physical shock from tactical operations. Complete development of a robust, miniature laser range finder. Transition the advanced high speed personnel delivery boat. Continue development of a rifle-fired 40mm grenade that provides a controlled pattern for use by tactical forces in close combat situations. Start evaluation and development of technologies that provide through-wall-imaging capability for use by tactical forces. Start identification and development of non-explosive breaching capabilities. Start evaluation and development of improved non-pyrotechnic diversionary device. (\$ 1.470 Million)

(U) **EXPLOSIVES DETECTION & DEFEAT.** Complete technology transition of the 90-mm water canon to industry. Complete technology transition of the Universal Training Device to industry. Complete development of a safer initiating system for various explosive disruption robots. Continue development of a system for the detection of terrorist bombs from standoff distances under a variety of conditions. Continue to develop the full spectrum of response requirements for large vehicle bombs, including detection, analysis, access, and disablement. Continue to develop an interactive, computer-based improvised explosive device neutralization training system. Continue development of a single-sided antenna for use with nuclear quadrupole resonance explosive detection methods. Continue researching factors that affect the capabilities of improvised explosive device detection through biological schemes. Continue development of a field-portable x-ray system for imaging the contents of suspect baggage/containers when access to only one side is possible. Continue development of the ARTS platform to include on-board diagnostics and access tools for EOD. Continue development of the flat-panel imager for a digital x-ray system. Continue development of a Canine based, remote collection explosives screening system for Large Vehicle Bombs. Continue development of a single-sided neutron interrogation unit for identification of vehicle bombs. Continue modeling of non-ideal, terrorist explosives. Continue development of a database for identification of large vehicle threats, disruption tools and procedures. Start development of an x-ray database on components used in IEDs. Start development of software codes for integrating robotic chassis and various tools used (arms/disrupters/sensors) for modular PC based control architecture. Start development of small, capable, low cost robots for EOD use. Start development of new high speed shape charge technology. Start development of new, portable, light-weight explosive total containment systems. (\$ 5.179 Million)

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(U) **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES.** Complete the development of an improved, in-field capability to identify nuclear materials. Complete the modification of a ion mobility spectroscopy chemical agent detector to perform separation of chemical agents in contaminated environments with a reduction in false alarms. Complete the development of a rapid detection system for pathogenic chemical and biological agents in food. Complete development of a inexpensive disposable chemical and biological protective system. Continue development of a standoff system for detection and characterization of chemical and biological agents using a non-nuclear source. Continue development of a non-hazardous, non-corrosive, environmentally-safe decontamination systems for chemical and biological agents. Continue the development of a real-time, highly selective and sensitive, portable chemical and biological warfare agent detection systems. Continue development of a personal chemical and biological agent dosimeter. Start the development of enhanced non-intrusive screening and diagnostic capabilities for operators to determine the contents of closed containers. Start expert review of existing urban modeling capabilities to include domestic and foreign.(\$ 7.294 Million)

(U) **PERSONNEL PROTECTION.** Complete design for flexible body armor that resists penetration and slashes from knives and other sharp edged instruments. Complete development and characterization of advanced lightweight body armor. Continue modeling explosive effects on fully armored vehicles, including effects on occupants. Continue development of a design for a system that will provide protection to VIP speakers from snipers. Continue evaluation and characterization of advanced transparent armor for use in fully armored vehicles. Start evaluation and development of multilayered, lightweight, energy-absorbing, composite armor for vehicles. (\$ 1.515 Million)

(U) **SURVEILLANCE, COLLECTIONS, & OPERATIONS SUPPORT.** Continue development of advanced tagging systems. Continue development of hostage barricade surveillance systems. Start development of CT analyst support tool. Start development of long-range, LPI/D communications system. Start development of special cellular communications protocol intercept and geolocation system. Start development of GPS cellular tracking device. Start development of portable, remote antenna array. (\$ 1.988 Million)

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(U) **PHYSICAL SECURITY.** Complete Personal Injury Study of the Khobar Towers Bombing and identify techniques that will reduce personnel injuries from blast effects. Continue development of a non-intrusive, multi-sensor, inspection system for the detection of bulk explosives in large vehicles. Continue the development of the modular, open architecture computer based system able to address the full range of vulnerability assessments and consequence or risk management tools to assist security personnel, facility engineers, installation managers and commanders in making effective and cost-sensitive force protection and facility security decisions. Continue the development of interagency Structural Blast Mitigation Program. Pace of large scale blast test against specialized structures increases; focus will be to evaluate new and existing seismic construction techniques for protection against blast loads. Start development of a multi-sensor, non-intrusive Undervehicle Inspection System for detection of bulk explosives and contraband. Start development of non-intrusive, rapid personnel screening system to detect explosive residue on individual passing through an inspection point. Start development of a advanced technology, rapid, mobile cargo inspection system. Start development of technology to stop internal combustion engine powered vehicles from exiting a vehicle inspection point. Start development of a self contained, easily deployable, immediately operable, access control point for deployed security forces. (\$ 9.008 Million)

(U) **INFRASTRUCTURE PROTECTION.** Complete development of an automated infrastructure analysis tool for the electric power grid. Complete development of a common encryption standard for use by the "commodity transport " infrastructure systems (i.e., natural gas, petroleum, electricity, etc.) on their Supervisory Control and Data Aquisition (SCADA) systems and Remote Terminal Units (RTU). Continue development of a means of modeling the effects of economic and information warfare terrorism. Continue the development of an radio frequency weapon characterization and effects database. Start development of computer/ software security and network intrusion detection tools. Start development of computer security training aides. Start development of water pipeline database. Start development of a hacker publication, tools, and methodology database. (\$ 1.440 Million)

(U) **INVESTIGATIVE SUPPORT & FORENSICS.** Complete the development of a system to detect and recover fingerprints on water soaked surfaces. Complete development of a document copier tagging system. Complete development of an enhanced version of the CarBomb CAD design tool, which is a system that aides post-blast analysis of vehicle bombs. Complete development of a first responder's tool set for emergency response and management. Continue development of an enhanced handwriting analysis system. Continue development of a personal attribute determination by fingerprints capability. Continue development of chemicals to tag devices and documents with micro-tracer particles. Start development of novel optical tagging systems for law enforcement. Start development of compendium of explosive properties. Start development of characterization of materials that are transparent to x-rays. Start development of computer forensics tools. (\$ 1.955 Million)

(U) Start development of a real-time facial recognition system.(\$ 2.500 Million)

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(U) FY2000 Plans:

(U) **TACTICAL OPERATIONS SUPPORT.** Complete development of non-pyrotechnic diversionary devices. Complete safety certification and transition rifle-fired 40mm grenade that provides a controlled pattern for use by tactical forces in close combat situations. Continue development of through wall imaging systems that provide capability to image wall construction as well as to identify presence of personnel in adjacent spaces. Continue development of portable non-explosive breaching devices. Start development of small, covert optical tags for tactical forces. Start development of advanced tactical sensors to identify and locate anti-personnel surveillance systems. (\$ 1.660 Million)

(U) **EXPLOSIVES DETECTION & DEFEAT.** Complete development of the flat-panel imager for a digital x-ray system. Complete development of a Canine based, remote collection explosives screening system for Large Vehicle Bombs. Complete to develop an interactive, computer-based improvised explosive device neutralization training system. Complete development of the ARTS platform for diagnostic and access for EOD; transition to US Air Force for procurement. Complete development of a single-sided neutron interrogation unit for the detection of vehicle bombs. Complete development of the x-ray database for identification of IED components. Complete development of a database for identification of large vehicle threats, tools and procedures. Complete modeling of non-ideal, terrorist explosives. Complete development of new, portable, light-weight explosive total containment systems. Continue development of a system for the detection of terrorist bombs from standoff distances under a variety of conditions. Continue development of a single-sided antenna for use with nuclear quadrupole resonance explosive detection methods. Continue researching factors that affect the capabilities of improvised explosive device detection through biological schemes. Continue to develop the full spectrum of response requirements for large vehicle bombs, including detection, analysis, access, and disablement. Continue development of software codes for integrating robotic chassis and various tools used (arms/disrupters/sensors) for modular PC based control architecture. Continue development of a field-portable x-ray system for imaging the contents of suspect baggage/containers when access to only one side is possible. Continue development of small, capable, low cost robots for EOD use. Continue development of high speed shape charge technology. Start development of detection technology to be used against advanced sensor based threats; thermal, acoustics, etc. Start development of technologies to image and identify components of IEDs for precision disruption. Start development of EOD tools (arms/disrupters) and sensors for small robotic platforms. Start development of enhanced Canine substance detection. Start development of detection technology for use against non-nitrogen based explosives. Start development for non-intrusive analysis. Start development of background contaminant profiling. (\$ 12.188 Million)

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(U) **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES.** Complete development of a non-hazardous, non-corrosive, environmentally-safe decontamination systems for chemical and biological agents. Complete the development of a rapid detection system for pathogenic chemical and biological agents in food. Continue development of a standoff system for detection and characterization of chemical and biological agents using a non-nuclear source. Continue development of a real-time, highly selective and sensitive, portable chemical and biological warfare agent detection systems. Continue development of a personal chemical and biological agent dosimeter. Continue review of urban modeling capability, perform verification studies. Start the development of enhanced non -intrusive screening and diagnostic capabilities for operators to determine the contents of closed containers. Start the development of testing procedures for next generation NBC responder equipment. (\$ 10.291 Million)

(U) **PERSONNEL PROTECTION.** Complete evaluation of advanced transparent armor for potential use in fully armored vehicles. Complete development of multilayered, lightweight, energy-absorbing, composite armor for vehicles. Complete modeling explosive effects on fully armored vehicles, including effects on occupants. Continue development of a design for a system that will provide protection to VIP speakers from snipers. Start development of system(s) capable of locating and identifying sniper optics. Start development a personnel tag system that provides identification of friendly personnel in an environment of multiple agency participation. (\$ 1.687 Million)

(U) **SURVEILLANCE, COLLECTION & OPERATIONS SUPPORT.** Complete development of hostage barricade surveillance systems. Complete development of CT analyst support tool. Complete development of long-range, LPI/D communications system. Complete development of GPS cellular tracking device. Continue development of advanced tagging systems. Continue development of special cellular communications protocol intercept and geolocation system. Continue development of portable, remote antenna array. Start development of long-range, clandestine microphone system. Start development of an automated profiling capability program to define the type and source of information indicative of terrorist activity. (\$ 3.179 Million)

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(U) **PHYSICAL SECURITY.** Complete development of system that can stop internal combustion engine powered vehicles from exiting a inspection point. Complete development of advanced multi-sensor, non-intrusive Undervehicle Inspection System for the detection of bulk explosives and contraband. Complete development of a non-intrusive, rapid personnel screening system to detect explosive residue on individual passing through an inspection point. Continue the development of a rapid, multi-sensor inspection system for the detect ion of bulk explosives at a entry point. Continue the interagency blast mitigation program; evaluation of the effectiveness of new blast wall designs for reducing over pressure and debris impacts on personnel and structures. Demonstrate new methods and establish criteria for reducing injuries and casualties due to progressive structural collapse. Continued development of a modular, open architecture system to provide intelligent vulnerability assessment, consequence and risk management tools to assist security personnel, facility engineers, installation managers and commanders in making effective and cost-sensitive force protection decisions. Conduct demonstration of enhanced capability mobile cargo inspection system. Start development of a virtual reality training system for inspection and entry points where security force personnel will participate in real time consequence management and interaction with virtual indigenous population. (\$ 10.218 Million)

(U) **INFRASTRUCTURE PROTECTION.** Complete development of an radio frequency weapon characterization and effects database. Complete development of computer security training aides. Complete development of a hacker publication, tools, an d methodology database. Continue development of a means of modeling the effects of economic and information warfare terrorism. Continue development of computer/software security and network intrusion detection tools. Continue development of water pipe line database. (\$ 1.660 Million)

(U) **INVESTIGATIVE SUPPORT & FORENSICS.** Complete development of chemicals to tag devices and documents with micro-tracer particles. Complete development of a first responder's tool set for emergency response and management. Complete development of compendium of explosive properties. Complete development of characterization of materials that are transparent to x-rays. Continue development of an enhanced handwriting analysis system. Continue development of a personal attribute determination by fingerprints capability. Continue development of novel optical tagging systems for law enforcement. Continue development of computer forensics tools. (\$ 2.171 Million)

(U) **FY2001 Plans:**

(U) **TACTICAL OPERATIONS SUPPORT.** Complete development of through wall imaging systems that provide capability to image wall construction as well as to identify presence of personnel in adjacent spaces. Complete development of non-explosive breaching devices. Complete development of small, covert optical tags for tactical forces. Continue development of advanced tactical sensors to identify and locate anti-personnel surveillance systems. (\$ 1.792 Million)

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(U) **EXPLOSIVES DETECTION & DEFEAT.** Complete development of a single-sided antenna for use with nuclear quadrupole resonance explosive detection methods. Complete development of software codes for integrating robotic chassis and various tools used (arms/disrupters/sensors) for modular PC based control architecture. Complete development of small, capable, low cost robots for EOD use. Complete researching factors that affect the capabilities of improvised explosive device detection through biological schemes. Complete development of high speed shape charge technology. Complete development of a field-portable x-ray system for imaging the contents of suspect baggage/containers when access to only one side is possible. Continue development of a system for the detection of terrorist bombs from standoff distances under a variety of conditions. Continue development of detection technology to be used against advanced sensor based threats; thermal, acoustics, etc. Continue development of technologies to image and identify components of IEDs for precision disruption. Continue development of EOD tools (arms/disrupters) and sensors for small robotic platforms. Continue development of enhanced Canine substance detection. Continue development of detection technology for use against non-nitrogen based explosives. Continue development for non-intrusive analysis. Continue to develop the full spectrum of response requirements for large vehicle bombs, including detection, analysis, access, and disablement. Continue development of background contaminant profiling. Start development of system to provide moving vehicle screening for explosives. Start development of materials for enhanced suppression/mitigation. (\$ 11.785 Million)

(U) **PERSONNEL PROTECTION.** Complete and demonstrate a system that will provide protection to VIP speakers from snipers. Complete development of system(s) capable of locating and identifying sniper optics. Complete the development of a personnel tag system that provides identification of friendly personnel in an environment of multiple agency participation. (\$ 1.795 Million)

(U) **PHYSICAL SECURITY.** Complete technology survey and field test phase of the interagency blast mitigation program. Complete recommended architectural guidelines for facility site planning and pre- and post-construction technologies that will mitigate damage and personal injury effects large blasts. Complete development of a modular, open architecture system to provide intelligent vulnerability, consequence management, risk, and assessment tool to assist security personnel, facilities engineers, installation managers and commanders in making effective and cost-sensitive force protection and facility security decisions. Continue development of a virtual reality training system for inspection and entry points where security force personnel will participate in real time consequence management and interaction with a virtual indigenous population. Continue the development of a rapid, multi-sensor inspection system for the detection of bulk explosives at a entry point. Start development of a integrated multi-sensor, non- intrusive, stand-off vehicle and operator inspection system able to address all facets of vehicle inspection and rapidly integrate the results to the security force. Start development of a easily deployable, quick erect protective barrier system capable of mitigating the effects of a large vehicle bomb. Start development of non-intrusive vehicle tagging and tracking system able to monitor unlimited number of vehicles located within a installation. (\$ 11.112 Million)

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(U) **INFRASTRUCTURE PROTECTION.** Complete development of water pipeline database. Continue development of a means of modeling the effects of economic and information warfare terrorism. Continue development of computer/softw are security and network intrusion detection tools. (\$ 1.791 Million)

(U) **INVESTIGATIVE SUPPORT & FORENSICS.** Complete development of an enhanced handwriting analysis system. Complete development of a personal attribute determination by fingerprints capability. Complete development of novel optical tagging systems for law enforcement. Continue development of computer forensics tools. (\$ 1.793 Million)

(U) **SURVEILLANCE, COLLECTION & OPERATIONS SUPPORT.** Complete development of special cellular communications protocol intercept and geolocation system. Cote developmt of portable, remote antenna array. Complete development of advanced tagging systems. Continue development of long range, clandestine microphone system. Continue development of an automated profiling capability program to define the te a sourcof information indicative of terrorist activity. (\$ 3.509 Million)

(U) **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES.** Complete the development of a rapid detection system for pathogenic chemical and biological ages in food. Complete development of a inexpensive disposable chemical and biological protective system. Continue development of a standoff system for detection and characterization of chemical and biological agents using a non-nuclear source. Contin development of a non-hazardous, non-corrosive, environmentally-safe decontamination systems for chemical and biological agents. Continue the development of a real-time, highly selective and sensitive, portable chemical and biological warfare agent dection systems. Continue development of a personal chemical and biological agent sampler. Continue review of urban modeling capability, perform validation studies. Continue the development of enhanced non-intrusive screening and diagnostic capabilities for operators to determine the contents of closed containers. Start the development of testing procedures for next generation NBC responder equipment. (\$ 11.753 Million)

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<i>COST(In Millions)</i>	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	40.826	37.667	52.223	54.791	56.510	52.758	54.021	55.306	Continuing	Continuing
Explosive Ordnance Disposal/Low Intensity Conflict/P206	3.717	3.983	7.831	8.095	8.350	8.626	8.847	9.131	Continuing	Continuing

(U) **Project Number and Title: P206 Explosive Ordnance Disposal/Low Intensity Conflict**

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS**

(U) **FY1998 Accomplishments:**

(U) Completed development of an autonomous search vehicle. Completed development of an imaging ordnance locator. Completed development of a high resolution diver sonar. Completed development of a standoff dearmmer with laser sight. Completed development of a clandestine underwater transponder. Completed development of an improvised explosive device visualization capability. Completed development of EOD ballistic/fragmentation protection. (\$ 0.403 Million)

(U) Continued development of special operations forces vehicle ballistic protection. Continued development of non-explosive cartridges. Continued development of a remote field disassembly system. Continued development of a limpet mine detection system. (\$ 0.69 Million)

(U) Started development of a support craft command and control system. Started development of an integrated mission planning and evaluation system. Started development of an integrated diver's display mask. Started development of an improved underwater demolition charge. Started development of a limpet mine neutralization tool. Started development of a hull acoustic navigation system for diver's search. Started development of an EOD incident site command, control and communications system. Started development of an advanced EOD tactical information system. Started development of a small munitions/boobytrap disrupter. Started evaluation of long range disrupters. Started evaluation of a miniature mine detector. Started development of a non-magnetic dive light. (\$ 2.624 Million)

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(U) FY1999 Plans:

(U) Complete development of special operations forces vehicle ballistic protection. Complete development of non-explosive cartridges. Complete development of a remote field disassembly system. Complete development of a limpet mine detection system. (\$ 1.000 Million)

(U) Continue development of a support craft command and control system. Continue development of an integrated mission planning and evaluation system. Continue development of an integrated diver's display mask. Continue development of an improved underwater demolition charge. Continue development of a limpet mine neutralization tool. Continue development of a hull acoustic navigation system for diver's search. Continue development of an EOD incident site command, control and communications system. Continue development of an advanced EOD tactical information system. Continue development of a small munitions/boobytrap disrupter. Continue evaluation of long range disrupters. Continue evaluation of a miniature mine detector. Continue development of a non-magnetic dive light. (\$ 1.575 Million)

(U) Start development of an HMMWV-based laser ordnance neutralization system. Start development of special operations target information system with a multifunction equation/calculator system. Start development of an EOD explosive transport and storage kit container. Start development of a portable/hand held thermal imaging device. Start development of a ground penetrating object detector. Start development of remote activation munitions systems (underwater adapter kit). Start development of electronic countermeasures for electronic fuses. Start development of an improved vehicle access/disruption device. (\$ 1.408 Million)

(U) FY2000 Plans:

(U) Complete development of a support craft command and control system. Complete development of an integrated mission planning and evaluation system. Complete development of an integrated diver's display mask. Complete development of an improved underwater demolition charge. Complete development of a limpet mine neutralization tool. Complete development of a hull acoustic navigation system for diver's search. Complete development of an EOD incident site command, control and communications system. Complete development of an advanced EOD tactical information system. Complete development of a small munitions/boobytrap disrupter. Complete evaluation of long range disrupters. Complete evaluation of a miniature mine detector. Complete development of a non-magnetic dive light. (\$ 0.300 Million)

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(U) Continue development of an HMMWV-based laser ordnance neutralization system. Continue development of special operations target information system with a multifunction equation/calculator system. Continue development of an EOD explosive transport and storage kit container. Continue development of a portable/hand held thermal imaging device. Continue development of a ground penetrating object detector. Continue development of remote activation munitions systems (underwater adapter kit). Continue development of electronic countermeasures for electronic fuses. Continue development of an improved vehicle access/disruption device. (\$ 1.605 Million)

(U) Start development of an integrated improvised explosive devices training system. Start development of a rapid underwater ordnance neutralizer. Start development of an advanced remotely controlled, EOD mini-reconnaissance vehicle. Start development of a special operations global remote initiator device. Start development of a miniature CD-ROM reader for EOD applications. Start development of a remote controlled transporter x-ray. Start development of a portable thermite grenade thermal insulator. Start development of a polarized ground disturbance lens. Start development of focused acoustic waves for special operations landmine detection. Start development of an ultrahigh pressure waterjet mine neutralization system. Start development of a SOF special energetic material (SOFSEM). Start development of an underwater breathing apparatus advanced CO2 scrubber. Start development of an advanced tactical personnel protection system. Start development of an integrated C4I low intensity conflict digital reconnaissance system. Start development of an under water digital reconnaissance system. Start development of an EOD low cost remote underwater search system. Start development of a long range remote control system. Start development of an advanced device for standoff identification of explosive hazard s. Start development of a tactical lightweight filmless x-ray receiver/imager. Start development of an advanced demolition timer. Start development of a portable underwater laser line scanner. Start development of a miniaturized, multi-sensor surface reconnaissance system. (\$ 5.926 Million)

(U) **FY2001 Plans:**

(U) Complete development of an HMMWV-based laser ordnance neutralization system. Complete development of special operations target information system with a multifunction equation/calculator system. Complete development of an EOD explosive transport and storage kit container. Complete development of a portable/hand held thermal imaging device. Complete development of a ground penetrating object detector. Complete development of remote activation munitions systems (underwater adapter kit). Complete development of electronic countermeasures for electronic fuses. Complete development of an improved vehicle access/disruption device. (\$ 0.550 Million)

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(U) Continue development of an integrated improvised explosive devices training system. Continue development of a rapid underwater ordnance neutralizer. Continue development of an advanced remotely controlled, EOD mini-reconnaissance vehicle. Continue development of a special operations global remote initiator device. Continue development of a miniature CD-ROM reader for EOD applications. Continue development of a remote controlled transporter x-ray. Continue development of a portable thermite grenade thermal insulator. Continue development of a polarized ground disturbance lens. Continue development of focused acoustic waves for special operations landmine detection. Continue development of an ultrahigh pressure waterjet mine neutralization system. Continue development of a SOF special energetic material (SOFSEM). Continue development of an underwater breathing apparatus advanced CO2 scrubber. Continue development of an advanced tactical personnel protection system. Continue development of an integrated C4I-low intensity conflict digital reconnaissance system. Continue development of an underwater digital reconnaissance system. Continue development of an EOD low cost remote underwater search vehicle. Continue development of a long range remote control system. Continue development of an advanced standoff system for identification of explosive hazards. Continue development of a tactical lightweight filmless x-ray receiver/imager. Continue development of an advanced demolition timer. Continue development of a portable underwater laser line scanner. Continue development of a miniaturized, multi-sensor surface reconnaissance system. (\$ 6.363 Million)

(U) Start development of an active infrared (AIR) detection system. Start development of an advanced limpet mine neutralization tool. Start development of an underwater excavation system. Start development of an area survey imaging sonar (ASIS). (\$ 1.182 Million)

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APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/BA 3							R-1 ITEM NOMENCLATURE Counterterror Technical Support PE 0603122D8Z				

<i>COST(In Millions)</i>	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	40.826	37.667	52.223	54.791	56.510	52.758	54.021	55.306	Continuing	Continuing
Special Operations/Low Intensity Conflict (SO/LIC)/P205	1.434	1.335	1.338	1.366	1.392	1.419	1.548	1.580	Continuing	Continuing

(U) **Project Number and Title: P205 Special Operations/Low Intensity Conflict (SO/LIC)**

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS**

(U) **FY1998 Accomplishments:**

(U) Projects included: Analysis of SOF Information Warfare Requirements and Capabilities, The Future of Intra-State Conflict, Development of Analytical Tools for Operations Other Than War, Enhanced PYSOP, Readiness of Joint Service Explosive Ordnance Disposal Units for the 21st Century, Effectiveness of PYSOP in Bosnia and Potential for Increased Utility of PYSOP on Support of Future Peace-Type Operations, and AC-130 Force Structure. (\$ 1.434 Million)

(U) **FY1999 Plans:**

The FY 1999 program was approved in August 1998. Approved projects/study include: Non-lethal Weapons Interagency study; Optempo/Perstempo versus Deployment of NSW Forces; Sof Operations in a Sensor Rich Environment; Joint Architecture Requirements for MPARE; Compliance with DoD Information Operations Master Plan; SECDEF Report on the Military's Role in Countering Terrorism; and the Effectiveness of DoD Medical Humanitarian Projects. (\$ 1.335 Million)

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(U) **FY2000 Plans:**

(U) The FY 2000 program will be finalized in August 1999, ensuring that study projects are timely and responsive to the requirements of DoD policy makers. (\$ 1.338 Million)

(U) **FY2001 Plans:**

(U) The FY 2001 program will be finalized in August 2000, ensuring that study projects are timely and responsive to the requirements of DoD policy makers. (\$ 1.366 Million)

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(U) B. <u>Program Change Summary</u>	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous Presidents Budget	39.036	35.813	39.223	41.381	Continuing
Appropriated Value	0	38.3130	0	0	Continuing
Adjustments to Appropriated Value					
a. Congressionally Directed Undistributed Reduction	0	-.646	0	0	
b. Rescission/Below-threshold Reprogramming, Inflation Adjustment	1.7900	0	-0.900	-0.900	
c. Other	0		13.0000	013.410	
Current Presidents Budget	40.826	37.667	52.223	54.791	Continuing

Change Summary Explanation:

(U) **Funding:** FY 1999 funding changes are due to congressional undistributed reductions. Congress added \$2.5 million in FY 1999 for the Facial Recognition Technology (FRT) project. Increase in FY 2000 and FY 2001 focus on Anti-Terrorism and Force Protection development.

(U) **Schedule:** N/A

(U) **Technical:** N/A

(U) **C. OTHER PROGRAM FUNDING SUMMARY COST:** Other Appropriation Funds: Department of State

(U) **D. ACQUISITION STRATEGY:** N/A

(U) **E. SCHEDULE PROFILE:** N/A

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